CLAIMS

1. An electric motor comprising

a housing, comprising at least one rotor provided with magnetized regions and mounted rotatably about a rotor axis in the housing, and comprising a stator having at least one stator unit, each stator unit including a set of first pole shoes, formed as claw poles, and a set of second pole shoes, formed as claw poles, which are disposed around the rotor axis, as well as a coil positioned following the rotor in the direction of the rotor axis and with its windings arranged to encircle the rotor axis, by means of which the first and second pole shoes can be magnetized,

the stator unit having two pole shoe elements of which a first pole shoe element has a first pole shoe carrier which extends transversely with respect to the rotor axis and is disposed on a side of the coil facing the rotor, as well as the first pole shoes formed integrally onto this carrier, which first pole shoes extend away from the first pole shoe carrier in a first direction approximately parallel to the rotor axis, and of which a second pole shoe element has a second pole shoe carrier which extends transversely with respect to the rotor axis and is disposed on a side of the coil facing away from the rotor, as well as the second pole shoes formed integrally onto this carrier, which second pole shoes also extend in the first direction away from the second pole shoe carrier approximately parallel to the rotor axis beyond the rotor, and the first pole shoe element carrying a connecting element which is formed integrally onto the first pole shoe carrier and establishes a magnetic circuit between the pole shoe carriers, the connecting element being fixedly connected to the second pole shoe carrier at least.

2. An electric motor according to claim 1, wherein the connecting element is formed onto the pole shoe carrier by means of deep drawing.

3. An electric motor according to claim 1, wherein the connecting element is formed as a sleeve.

4. An electric motor according to claim 3, wherein the sleeve forms a winding former for the coil.

5. An electric motor according to claim 1, wherein the connecting element is connected to the second pole shoe carrier by means of joining.

6. An electric motor according to claim 5, wherein the connecting element is welded to the second pole shoe carrier.

7. An electric motor according to claim 1, wherein the connecting element and the first pole shoe carrier are provided with an electrically insulating coating on the side facing the coil.

8. An electric motor according to claim 7, wherein the second pole shoe carrier is provided with an electrically insulating coating on the side facing the coil.

9. An electric motor according to claim 7, wherein the coating has a thickness of less than 10 μm.

10. An electric motor according to claim 7, wherein the coating has a glass-like consistency.

11. An electric motor according to claim 1, wherein the pole shoe elements are provided with a corrosion-resistant coating.

12. An electric motor according to claim 1, wherein the second pole shoes overlap the coil.

13. An electric motor according to claim 1, wherein the first and second pole shoes lie on the same cylindrical surface which extends about the rotor axis and that the one pole shoes are disposed in the gaps between the other pole shoes.

14. An electric motor according to claim 13, wherein the pole shoes disposed successively in an azimuthal direction around the rotor axis have identical angular spacings from each other.

15. An electric motor according to claim 14, wherein the first and second pole shoes extend so far in the first direction that their ends lie in a common plane running perpendicular to the rotor axis.

16. An electric motor according to claim 1, wherein the second pole shoe carrier of the stator unit is connected to a bearing support which carries a rotary bearing for the rotor.

17. An electric motor according to claim 16, wherein a receiving portion of the bearing support engages into the connecting element.

18. An electric motor according to claim 16, wherein the bearing support is made of plastics.

19. An electric motor according to claim 1, wherein the electric motor has a stator, two stator units and a rotor having a respective rotor unit associated with each stator unit the rotor units being seated on a common shaft.

20. An electric motor according to claim 19, wherein the stator units are arranged in such a way that their pole shoes face each other.

21. An electric motor according to claim 19, wherein for both stator units, all pole shoes are disposed on the same cylindrical surface around the rotor axis.

22. An electric motor according to claim 19, wherein both of the stator units are of identical construction.

23. An electric motor according to claim 19, wherein holding positions of the rotor units, determined by magnetic effect, relative to the respective stator units, are rotationally displaced in relation to each other by half a pole space.